

## LISTING OF CLAIMS

1. (Currently Amended) A multiple-input queuing system comprising:
  - a buffer that includes a plurality of memory-elements,
  - an allocator that is configured to, at a time at which a data-item from a select input-stream of a plurality of input-streams is to be stored, allocate any currently-unused memory-element of the plurality of memory-elements for storing ~~a-the~~ data-item from a the select input-stream of a plurality of input-streams, and
  - a mapper that is configured to:
    - receive a request for an output corresponding to the select input-stream,
    - determine an address associated with the memory-element, based on the request for the select input-stream, and
    - provide the data-item from the memory-element as the output, based on the address associated with the memory-element.
2. (Original) The multiple-input queuing system of claim 1, further including
  - a first switch, operably coupled to the allocator, that is configured to route the data-item from the select input-stream to the memory-element.
3. (Original) The multiple-input queuing system of claim 2, further including
  - a second switch, operably coupled to the mapper, that is configured to route the data-item from the memory-element to the output.
4. (Original) The multiple-input queuing system of claim 1, wherein
  - the allocator is further configured to allocate the memory-element based on a request from the select input-stream for an allocation.

5. (Original) The multiple-input queuing system of claim 4, wherein  
the allocator is further configured to:  
receive allocation requests from other input-streams of the plurality of  
input-streams,  
determine a relative priority of the allocation requests from the other  
input-streams and the request from the select input-stream, and  
identify the select input-stream, based on the relative priority.
6. (Original) The multiple-input queuing system of claim 4, wherein  
the allocator is further configured to:  
receive allocation requests from other input-streams of the plurality of  
input-streams, and  
allocate other memory-elements of the plurality of memory-elements for  
storing other data-items from the other input-streams.
7. (Original) The multiple-input queuing system of claim 6, wherein  
the allocator is configured to allocate the other memory-elements  
contemporaneously with allocating the memory-element for storing the data-item from  
the select input-stream.
8. (Original) The multiple-input queuing system of claim 6, wherein  
the mapper that is further configured to:  
receive requests for outputs corresponding to the other input-streams,  
determine addresses associated with the other memory-elements, based on  
the request for the other input-streams, and  
provide the other data-items from the other memory-element as outputs  
from the multiple-input queuing system, based on the addresses associated with the other  
memory-element.

9. (Currently Amended) A buffer system that is configured to receive data from a plurality of input-streams, the buffer system comprising:

a plurality of memory-elements,

a plurality of input-multiplexers, each input-multiplexer being coupled to a memory-element of the plurality of memory-elements, and

an allocator, operably coupled to the plurality of memory-elements, that is configured to couple one or more input-streams of the plurality of input-streams to corresponding one or more memory-elements, via allocation commands to the plurality of input-multiplexers, wherein the allocator, at a time at which a data-item from a select input-stream of a plurality of input-streams is to be stored, allocates any currently-unused memory-element of the plurality of memory-elements for storing a-the data-item from a the select input-stream of the plurality of input-streams.

10. (Original) The buffer system of claim 9, further including:

a mapper, operably coupled to the allocator, that includes:

a memory that is configured to store information corresponding to the allocation commands, and

a multiplexer, operably coupled to the memory, that is configured to access the information corresponding to the allocation commands, and to thereby provide an identification of the one or more memory-elements corresponding to a select input-stream of the plurality of input-streams, and

an output-multiplexer, operably coupled to the plurality of memory-elements and to the mapper, that is configured to couple a select memory-element of the plurality of memory-elements to an output of the buffer system, based on the identification of the one or more memory-elements corresponding to the select input-stream.

11. (Original) The buffer system of claim 10, wherein

the memory of the mapper includes

a plurality of queues, each queue of the plurality of queues corresponding to each input-stream of the plurality of input-streams.

12. (Currently Amended) A method of buffering data-items from a plurality of input-streams, including:

receiving an input-notification from one or more input-streams of the plurality of input-streams,

at a time at which a data-item from a select input-stream of a plurality of input-streams is to be stored. allocating as a select memory-element any currently-unused memory-element of a plurality of memory-elements to a~~the~~ select input-stream of the one or more input-streams,

storing a received data-item from the select input-stream to the select memory-element,

storing an identification of the select memory-element corresponding to the select input-stream,

receiving an unload request that identifies the select input-stream, and

providing the received data-item from the select memory-element, based on an identification of the select memory-element corresponding to the select input-stream.

13. (Original) The method of claim 12, further including

allocating a plurality of select memory-elements of the plurality of memory-elements to a plurality of select input-streams of the one or more input-streams,

storing a received data-item from each of the plurality of select input-streams to a corresponding each of the plurality of select memory-elements, and

storing an identification of each of the plurality of select memory-elements corresponding to each of the plurality of select input-streams.

14. (Original) The method of claim 12, wherein:

storing the identification of the select memory-element includes

placing the identification in a first-in-first-out queue that is associated with the select input-stream, and

providing the received data-item includes

removing the identification from the first-in-first-out queue that is associated with the select input-stream.

15. (Original) The method of claim 12, wherein:

each memory-element of the plurality of memory-elements is dynamically classifiable as currently-used and currently-unused;

allocating the select memory-element includes:

identifying one of the plurality of memory-elements that is classified as currently-unused as the select memory-element, and

classifying the select memory-element as currently-used; and

providing the received data-item includes

classifying the select memory-element as currently-unused.